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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/052,926	01/16/2002	Jeffrey R. Sampson	2003309-0027 (Agilent 10	1042
7590	01/25/2005		EXAMINER TUNG, JOYCE	
AGILENT TECHNOLOGIES, INC. Legal Department, DL429 Intellectual Property Administration P.O. Box 7599 Loveland, CO 80537-0599			ART UNIT 1637	PAPER NUMBER
DATE MAILED: 01/25/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/052,926	Applicant(s) SAMPSON, JEFFREY R.	
	Examiner Joyce Tung	Art Unit 1637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 and 67-101 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-35 and 67-101 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/16/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

This applicant's response filed 11/1/2004 to the Office action has been entered. Claims 1-35 and 67-101 are pending.

1. The objection of claim 4 is withdrawn because of the amendment.
2. The rejection of claims 1-35 and 67-101 under 35 U.S.C. 112, second paragraph is withdrawn because of the argument.
3. The rejection of claims 1-34 and 67-100 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baldarelli et al. (6,015,714, issued Jan. 18, 2000) in view of Sampson et al. (6,054,274, issued Apr. 25, 2000) is withdrawn because of the argument.
4. The rejection of claims 35 and 101 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baldarelli et al. (6,015,714, issued Jan. 18, 2000) in view of Sampson et al. (6,054,274, issued Apr. 25, 2000) as applied to claims 1-34 and 67-100 above, and further in view of Thorp et al. (5,871,918, issued Feb. 16, 1999) is withdrawn because of the argument.

NEW GROUNDS OF REJECTIONS

5. Claims 1-32, 67-75, and 78-100 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baldarelli et al. (6,015,714, issued Jan. 18, 2000) in view of Lizardi (6,632,609, issued Oct. 14, 2003).

Baldarelli et al. disclose a method for sequencing nucleic acid polymer. The description of the method of Baldarelli et al. is listed in claims 1-24 (See Abstract and column 23-24, claims 1-24). Modified bases are available including methylated bases (See column 8, lines 44-45). In order to identify the monomers, condition should be appropriate to avoid secondary structure in the polymer to be sequenced (See column 8, lines 53-54).

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Baldarelli et al. do not disclose using a circular template, the nucleic acid molecule containing modified nucleotides, which are modified adenosine, modified thymine, modified guanosine and modified cytosine.

Lizardi discloses rolling circle amplification involving circular template (See fig. 4) to make a long DNA molecule containing multiple repeats of sequences complementary to the circular template (or open circle probe) (See column 9, lines 13-17). The modified nucleotides caged in the probe are modified adenosine, modified thymine, modified guanosine and modified cytosine (See column 78, lines 1-10).

One of ordinary skill in the art would have been motivated to modify the method of Baldarelli et al. by applying the circular template and modified base as taught by Lizardi et because as taught by Lizardi, rolling circle amplification results in a large amplification of the circularized probe sequences, orders of magnitude greater than a single cycle of PCR replication (See column 3, lines 16-20) and the modified nucleotide in the probe protect the 3'hydroxyl and render the degenerate probes incapable of participating in DNA polymerase extension (See column 78, lines 11-16) to produce different lengths of tandem repeat sequences (See column 22, lines 2-6). Although, Lizardi does not indicate that the modified nucleotides used is for reducing secondary structure in the nucleic acid molecule, the intended use does not render patentable weight. Thus, it would have been prima facie obvious to apply the circular template and modified nucleotide to the method of Baldarelli et al. to make the instant invention for sequencing nucleic acid.

6. Claims 33-34 and 76-77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baldarelli et al. (6,015,714, issued Jan. 18, 2000) in view of Lizardi (6,632,609, issued Oct. 14,

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2003) as applied to claims 1-32, 67-75, and 78-100 above, and further in view of Ross et al. (6,175,004, issued January 16, 2001).

The teachings of Baldarelli et al. and Lizardi are set forth in section 5 above. Baldarelli et al. and Lizardi do not disclose that the nucleic acid molecule contains aminoadenosine, thiothymidine, inosine and pyrrolopyrimidine.

Ross et al. disclose an oligonucleotide, which contains 2-aminoadenosine, and like moieties (See column 4, lines 27-31).

One of ordinary skill in the art would have been motivated to modify the method of Baldarelli et al. by applying the nucleic acid molecule containing 2-aminoadenosine because the nucleic acid molecule containing 2-aminoadenosine provides stronger hybridization to their target sequences (See column 4, lines 31-32). Thus, it would have been prima facie obvious to apply the nucleic acid molecule containing 2-aminoadenosine to the method of Baldarelli et al. to make the instant invention for sequencing nucleic acid.

7. Claims 35 and 101 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baldarelli et al. (6,015,714, issued Jan. 18, 2000) in view of Lizardi (6,632,609, issued Oct. 14, 2003) as applied to claims 1-32, 67-75 and 78-100 above, and further in view of Thorp et al. (5,871,918, issued Feb. 16, 1999).

The references of Baldarelli et al. and Lizardi set forth in section 5 above do not disclose analyzing nucleic acid by electron tunneling.

Thorp et al. disclose a method of detecting a nucleic acid by using electron tunneling (See column 9, lines 30-55). The method may be used in a variety of applications, including DNA sequencing (See the Abstract).

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One of ordinary skill in the art would have been motivated to modify the method of Baldarelli et al. by applying electron tunneling as taught by Thorp et al. since the electron tunneling is applied to DNA sequencing. It would have been prima facie obvious to apply the electron tunneling to the method of Baldarelli et al. to make the instant invention for sequencing DNA.

Summary

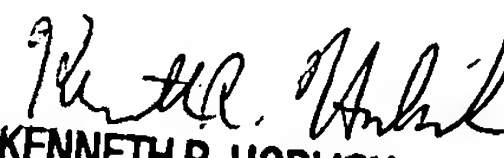
8. No claims are allowable.
9. Any inquiries concerning this communication or earlier communications from the examiner should be directed to Joyce Tung whose telephone number is (703) 305-7112. The examiner can normally be reached on Monday-Friday from 8:00 AM-4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached at (703) 308-1119 on Monday-Friday from 10:00 AM-6:00 PM.

Any inquiries of a general nature or relating to the status of this application should be directed to the Chemical/Matrix receptionist whose telephone number is (703) 308-0196.

10. Papers related to this application may be submitted to Group 1600 by facsimile transmission. Papers should be faxed to Art Unit 1637 via the PTO Fax Center located in Crystal Mall 1 using (703) 305-3014 or 308-4242. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989).

Joyce Tung
J. T.
January 20, 2005


KENNETH R. HORLICK, PH.D.
PRIMARY EXAMINER

1/24/05